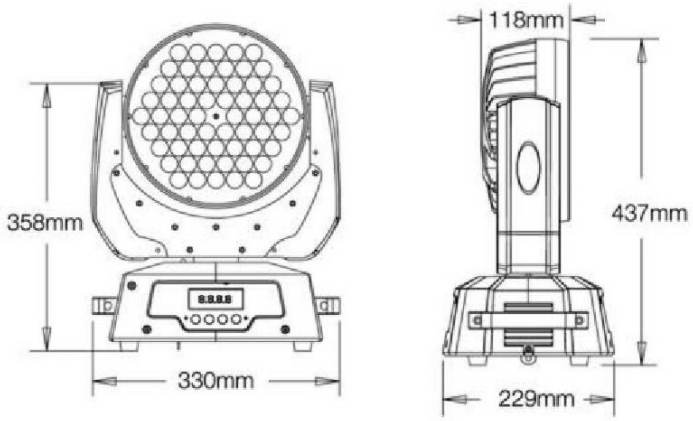
QUANTUM 3000

USER'S MANUAL

LUDI LIGHTING

Dimensions



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Safety Information

WARNING!

Read the safety precautions in this section before installing, powering, operating or servicing this product.

Warning! Class 2M LED product. Do not look into the beam at a distance of less than 0.5 meters(20 inches) from the front surface of the product. Do not view the light output with optical instruments or any device that my concentrate the beam.

This product is for professional use only. It is not for household use.

This product presents risks of severe injury or death due to fire and burn hazards, electric shock and falls.

Read this manual before installing, powering or servicing the fixture, follow the safety precautions listed below and observe all warnings in this manual and printed on the fixture. If you have questions about how to operate the fixture safely, please contact your Ludi supplier.

PROTECTION FROM ELECTRIC SHOCK

- Disconnect the fixture from AC power before removing or installing any cover or part – including fuses - and when not in use.
- Always ground (earth) the fixture electrically.
- Use only a source of AC power that complies with local building and electrical codes and has both overload and ground-fault (earth-fault) protection.
- Before using the fixture, check that all power distribution equipment and cables are in the perfect condition and rated for the current requirements of all connected devices.
- Isolate the fixture from power immediately if the power plug or any seal, cover, cable, or other component is damaged, defective, deformed, wet or showing signs of overheating. Do not reapply power until repairs have been completed.
- Do not expose the fixture to rain or moisture.
- Refer any service operation not described in this manual to a qualified technician.
- Socket outlets used to supply fixtures with power or external power switches must be located near the fixtures and easily accessible so that the fixtures can be easily disconnected from power.

PROTECTION FROM BURNS AND FIRE

- Do not operate the fixture if the ambient temperature (Ta) exceeds 40° C (104° F).
- The exterior of the fixture becomes hot during use. Avoid contact by persons and materials. Allow the fixture to cool for at least 10 minutes before handling.
- Keep all combustible materials (e.g. fabric, wood, paper) at least 100 mm (4 ins.) away from the head.
- Keep flammable materials well away from the fixture.

- Do not illuminate surfaces within 250 mm (10 ins.) of the fixture.
- Do not attempt to bypass thermostatic switches or fuses. Replace defective fuses with ones of the specified type and rating.
- Do not stick filters, masks or other materials onto any optical component.
- Do not modify the fixture in any way not described in this manual.
- Install only genuine Ludi parts.

PROTECTION FROM INJURY

- Do not look continuously at LEDs from a distance of less than 0.5 meters (20 inches) from the front surface of the fixture without protective eyewear such as shade 4-5 welding goggles. At less than this distance, the LED emission can cause eye injury or irritation. At distances of 0.5 meters (20 inches) and above, light output is harmless to the naked eye provided that the eye's natural aversion response is not overcome.
- Do not look at LEDs with magnifiers, telescopes, binoculars or similar optical instruments that my concentrate the light output.
- Ensure that persons are not looking at the LEDs from within 0.5 meters (20 inches) when the product lights up suddenly. This can happen when power is applied, when the product receives a DMX signal, when a stand-alone program suddenly increases light output intensity or when SERVICE menu items are selected.
- Install as described in this manual a secondary attachment such as a safety cable that is approved by an official body such as TUV as a safety attachment for the weight of all the fixates it secures. The safety cable must be comply with EN 60598-2-17 Section 17.6.6 and be capable of bearing a static suspended load ten times the weight of the fixture.
- If suspending from a rigging structure, attach the fixture with two evenly spaced clamps. Do not use only one clamp.
- Ensure that any supporting structure and/or hardware used can hold at least 10 times the weight of all the devices they support.
- Allow enough clearance around the head to ensure that it cannot collide with an object or another fixture when it moves.
- Check that all external covers and rigging hardware are securely fastened.
- Block access below the work area and work from a stable platform whenever installing, servicing or moving the fixture.
- Do not operate the fixture with missing or damaged covers, shields or any optical component.

Introduction

Thank you for selecting the Quantum 3000, an intelligent lighting fixture from Ludi Lighting. This LED-based moving-head washlight features:
Edison high-power emitters
DMX control and stand-alone operation with scenes programmed on fixture or captured via DMX
Onboard control panel and backlit LCD graphic display
RGBW color mixing with CTC
Smooth electronic dimming
Electronic strobe with pulse effects
630° pan and 270° tilt ranges
8 bit and 16 bit DMX control modes

Data link

A data link is required in order to control a Quantum 3000 via DMX.
The Quantum 3000 has 3 pin connectors from DMX data input and output. The pin-out on all connectors is pin 1 = shield, pin 2 = cold (-), and pin 3 = hot (+). Do not use the outputs to split the DMX link.

Tips for reliable data transmission

Use shielded twisted-pair cable designed for RS-485 devices: standard microphone cable cannot transmit control data reliably over long runs. 24 AWG cable is suitable for runs up to 300 meters (1000 ft). Heavier gauge cable and/or and amplifier is recommended for longer runs.
Never use both a fixture's outputs to split a DMX link. To split the link into branches, use a splitter. Terminate the link by installing a termination plug in the output socket of the last fixture. The termination plug, which is a male XLR plug with a 120 Ohm, 0.25 Watt resistor soldered between pins 2 and 3, "soaks up" the control signal so it does not reflect and cause interference. If a splitter is used, terminate each branch of the link.

Connecting the date link

1. Connect the DMX data output from the controller to the Quantum 3000 3-pin input (male) socket.
2. Using the sockets that match your data cable, connect the output of the fixture closest to the controller to the input of the next fixture.
3. Insert a male 120 Ohm XLR termination plug in the 3-pin or 5-pin output of the last fixture on the link.

DMX protocol

DMX channel	DMX value	Function
1	000-255	Red, Dark → Bright
2	000-255	Green, cark → bright
3	000-255	Blue, cark → bright
4	000-255	White, cark → bright
5	000-255	Pan, 0 - 630°
6	000-255	Tilt, 0 – 270°
7	000-225	Pan and tilt speed, fast → slow
	226-255	Normal speed. Black out when set to shutter option from the menu.
8	000-009	Null
	010-149	Strobe, slow → fast
	150-199	Strobe effect 1, slow → fast
	200-249	Strobe effect 2, slow → fast
	250-255	Null
9	000-255	Master dimming, dark → bright
10	000-004	Null
	005-031	R(↑)G(0)B(0)W(min)
	032-063	R(↓)G(↑)B(0)W(min)
	064-095	R(↑)G(255)B(0)W(min)
	096-127	R(↓)G(↓)B(↑)W(min)
	128-159	R(↑)G(0)B(255)W(min)
	160-191	R(↓)G(↓)B(255)W(min)
	192-223	R(↑)G(255)B(255)W(min)
	224-255	R(↓)G(↓)B(↓)W(min)
11	000-049	Enable R,G,B,W dimming(channel 1-4)
	050-059	Red
	060-069	Green
	070-079	Blue
	080-089	Yellow
	090-099	Cyan
	100-109	Magenta
	110-119	White
	120-129	RGB + white
	130-139	3200K
	140-149	5600K
	150-159	6500K
	160-169	8500K
	170-179	1000K
	180-184	Color changing, auto pan/tilt
	185-189	Color changing, pan/tilt by DMX control

	190-194	Strobe, auto pan/tilt
	195-199	Strobe, pan/tilt by DMX control
	200-204	Rainbow effects, auto pan/tilt
	205-209	Rainbow effects, pan/tilt by DMX control
	210-214	Macro 1, auto pan/tilt
	215-219	Macro 1, pan/tilt by DMX control
	220-229	Reset
	230-234	Macro 2, auto pan/tilt
	235-239	Macro 2, pan/tilt by DMX control
	240-244	Sound activated, auto pan/tilt
	245-249	Sound activated, pan/tilt by DMX control
	250-255	Null
12	000-255	Pan, fine adjust
13	000-255	Tilt, fine adjust

Troubleshooting

Problem	Probable cause(s)	Remedy
Fixture is completely dead.	No power to fixture	Check power and connections.
	Fuse blown	Disconnect fixture from power. Check fuses and replace.
One or more fixtures resets correctly but responds erratically or not at all to the controller.	Fault on data link	Inspect connections and cables. Correct poor connections. Repair or replace damaged cables.
	Data link not terminated.	Insert termination plug in output connector of the last fixture on the link.
	Incorrect fixture DMX addressing.	Check addressing on fixture and controller. Check fixture is set to correct DMX mode.
	One of the fixtures is defective and is disturbing data transmission on the link.	Unplug XLR in and out connectors and connect them directly together to bypass one fixture at a time until normal operation is regained. Have faulty fixture serviced by Ludi service technician.
	XLR pin-out on fixtures does not match (pins 2 and 3 reversed).	Install a phase-reversing cable between the fixtures or swap pins 2 and 3 in the fixture that behaves erratically.
Light output shuts down unexpectedly.	Fixture is too hot.	Clean the fixture, especially air vents. Ensure free airflow around fixture. Check that ambient temperature does not exceed max. permitted level. If problem persists, contact Ludi for advice.

Disposing of this product

Ludi products are supplied in compliance with Directive 2002/96/EC of the European Parliament and of the Council of the European Union on WEEE (Waste Electrical and Electronic Equipment), as amended by Directive 2003/108/EC, where applicable.

Help preserve the environment! Ensure that this product is recycled at the end of its life. Your supplier can give details of local arrangements for the disposal of Ludi products.

Specifications

Physical

Length . . . . . .330 mm (13 in.)

Width . . . . . .229 mm (9 in.)

Height . . . . . .437 mm (17.2 in.)

Weight . . . . . 9.6 kg (21.1 lbs.) excl. brackets

Dynamic Effects

Color mixing. . . . . RGBW

Red . . . . . .0 - 100%

Green. . . . . .0 - 100%

Blue . . . . . .0 - 100%

White . . . . . .0 - 100%

Variable CTC

Electronic dimming . . . . . 0 - 100%, two dimming curve options for overall/individual RGB intensity

Strobe effect. . . . . Electronic, with pulse and random effects

Pan. . . . . 630°

Tilt . . . . . 270°

Adjustable pan/tilt and effects speed

Optics

Light source . . . . . .Edison high power emitters

Red . . . . . 621-637 nm

Green. . . . . 525-542 nm

Blue . . . . . 445-461 nm

White . . . . . 5600 K

Light Output

Max. RGBW in total . . . . . .7910 lux @ 3 M

Red . . . . . 2394 lux @ 3 M

Green. . . . . 1498 lux @ 3 M

Blue . . . . . 2758 lux @ 3 M

White . . . . . 1498 lux @ 3 M

Control and Programming

Control options. . . . . DMX, stand-alone, master/slave

Control resolution. . . . . .8- and 16-bit

DMX channels 13

Setting and addressing . . . . . Control panel with backlit LCD display

Protocol . . . . . .USITT DMX512/1990

Stand-alone programming . . . . . Control panel with backlit graphic display

Construction

Color . . . . . Black

Housing . . . . . High-impact flame-retardant thermoplastic

Protection rating. . . . . .IP 20

Electrical

AC power . . . . . 100-240 V, 50/60 Hz

Maximum total power consumption . . . . . .392 W

Main fuse . . . . . .6.3 AT (for use at 100-130 V nominal), 4 AT (for use at 200-240 V nominal)

Standby power . . . . . 28 W

Thermal

Cooling. . . . . Forced air

Maximum ambient temperature (Ta max.) . . . . . 40° C (104° F)

Minimum ambient temperature (Ta min.) . . . . . 5° C (41° F)

Approvals

EU safety . . . . . EN 60598-1, EN 60598-2-17

EU EMC . . . . . EN 61000-3-2, EN 61000-3-3, EN 61000-6-2, EN 61000-6-4